

US EPA ARCHIVE DOCUMENT



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Executive Director

Mid West Clean Diesel Collaborative

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Experience the benefits of diesel power first hand !



*Allen Schaeffer,
executive director*



LEADERS IN CLEAN DIESEL TECHNOLOGY

- Agco
 - Amyris
 - BP
 - BorgWarner
 - Bosch
 - Caterpillar Inc.
 - Corning
 - Cummins Inc
 - Daimler
 - Deere & Company
 - Delphi Diesel Systems
 - Donaldson Co.
 - Dow Automotive
 - Ford Motor Company
 - General Motors
 - Honeywell
 - Johnson Matthey
 - Mazda North American Operations
 - Navistar
 - Volvo Group
 - Volkswagen of America
 - Terra Environmental
 - Tognum /MTU
 - Yanmar America
- Allied Members**
- Association of Diesel Specialists
 - Western States Petroleum Association

As of February 2012

Let's talk about . . .

- Economic Importance of Diesel Power
- The News- what's new on diesel emissions, research, health effects
- New Technology Diesel Engines
- Modernizing and Upgrading



ECONOMIC IMPORTANCE AND INFLUENCE OF DIESEL

DIESEL POWERS the U.S. ECONOMY

Providing High-Paying Jobs, Exports and Long-Term Productivity Gains in the Nation's Fundamental Sectors



MEET THE LEADERS IN ADVANCED DIESEL TECHNOLOGIES:

Clean Diesel Power

BOSCH Invented for Life

CATERPILLAR

Cummins

AMYRIS

ADS DIESEL SPACEVACUUMS

BASF The Chemical Company

BorgWarner

bp

CHRYSLER

COBING

DAIMLER

DELPHI A Delphi Technologies Company

Donaldson Industrial Solutions

Dow Automotive Systems

Ford

GM

Honeywell

JOHN DEERE

Johnson Matthey

Mazda

mtu

NAVISTAR POWERING INDEPENDENCY

TENNECO

TECH Environmental Technologies A DSI (Ingersoll Rand) Company

umicore

VOLVO

VOLKSWAGEN GROUP OF AMERICA

WSPA Western States Petroleum Association

DIESEL TECHNOLOGY FORUM
www.dieselforum.org

Visit www.dieselforum.org to download full report; and view press conference video.

Study Authors: Dr. Richard McCann, Aspen Environmental Group and Dr. Steven Moss, M-Cubed; Sacramento CA

HIGHLIGHTS OF FINDINGS

- ⦿ Diesel technology is ubiquitous, powering all sectors of the economy particularly those that are fundamental
- ⦿ Diesel technology supersector about same size as all utilities (energy, water and telecommunications)
- ⦿ Adding diesel-reliant sectors, produces as much national income as the information sector
- ⦿ Diesel industries generate high economic value
 - ⦿ Jobs pay well above the national average
 - ⦿ Produce disproportionate share of exports

HIGHLIGHTS OF DIESEL IMPORTANCE TO SPECIFIC SECTORS

- 90% of agriculture's \$1.2 trillion in shipments are made by diesel vehicles
- 98.5% of construction and mining fuel use is diesel
- 85% of transit vehicles and 49% of transit passenger-miles were diesel powered
- 83% of Army and Marine vehicles and engines are diesel powered

Many public sector functions rely on diesel

- Virtually all emergency vehicles, such as ambulances, fire engines and tow trucks use diesel engines
- Hospitals, data centers, air traffic control towers, pipelines and other critical service sectors often rely on diesel generators for emergency standby power
- National defense relies on diesel to move material, munitions and weapons, both between theatres and on the battlefield
- Non-rail transit mostly diesel powered

SCOPE

- Assessment of economic value delivered by diesel technology to the U.S. economy
 - “State of the World” report
- Focus on:
 - Diesel technology production and fuels industries, plus diesel support services
 - Diesel-reliant industries in resource extraction, agriculture, construction, freight-hauling



METHODOLOGY

- ◎ Use regional impact assessment approach
 - > Rely on IMPLAN and U.S. economic data sources
- ◎ Identify relationships of diesel technology and fuel industries to key economic sectors
 - > Assign economic output causation from diesel use
- ◎ Assess share of U.S. GDP and employment produced when using diesel = technology enabled activity

METHODOLOGY

Industries Covered

- ◎ Diesel **Fuel**
 - > Oil production and refining
- ◎ Diesel **Technology Manufacturing**
 - > Auto and truck
 - > Rail
 - > Ships
 - > Tractors and other off-road and industrial equipment
 - > Military vehicles, ships and equipment
- ◎ Diesel **Servicing**

Diesel Reliant Sectors

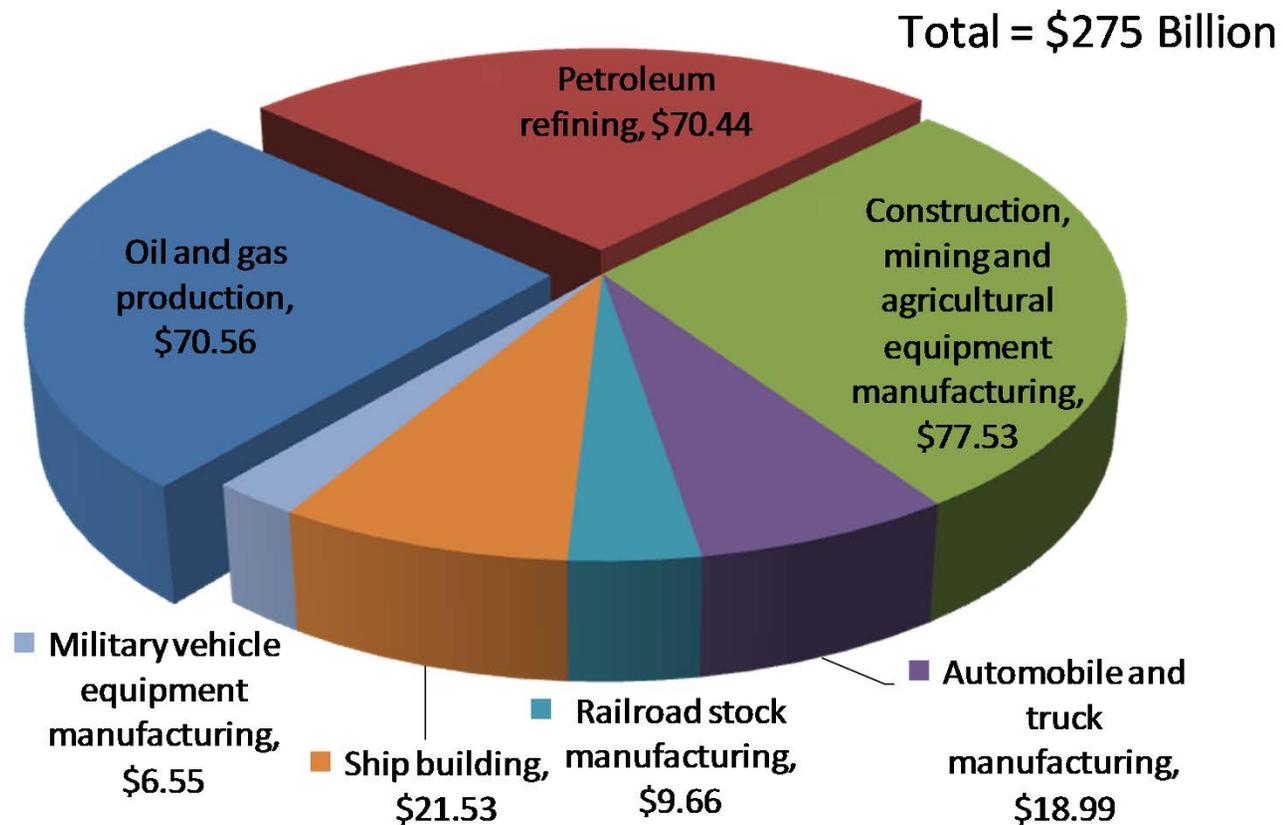
- Agriculture
- Mining
- Oil and Gas Production
- Construction
- Trade and Freight Hauling
- Utilities
- Passenger Transport
- Government Services

Diesel facilitates large share of U.S. GDP

- Diesel technology, fuels and services produced about the same as the Utilities (energy, water, telecommunications) GDP share
- The total of technology, fuels, services and diesel-reliant sectors is about the same as the Information sector—about 4.5% of US GDP

TECHNOLOGY AND FUELS CONTRIBUTED \$275 BILLION TOWARD U.S. GDP

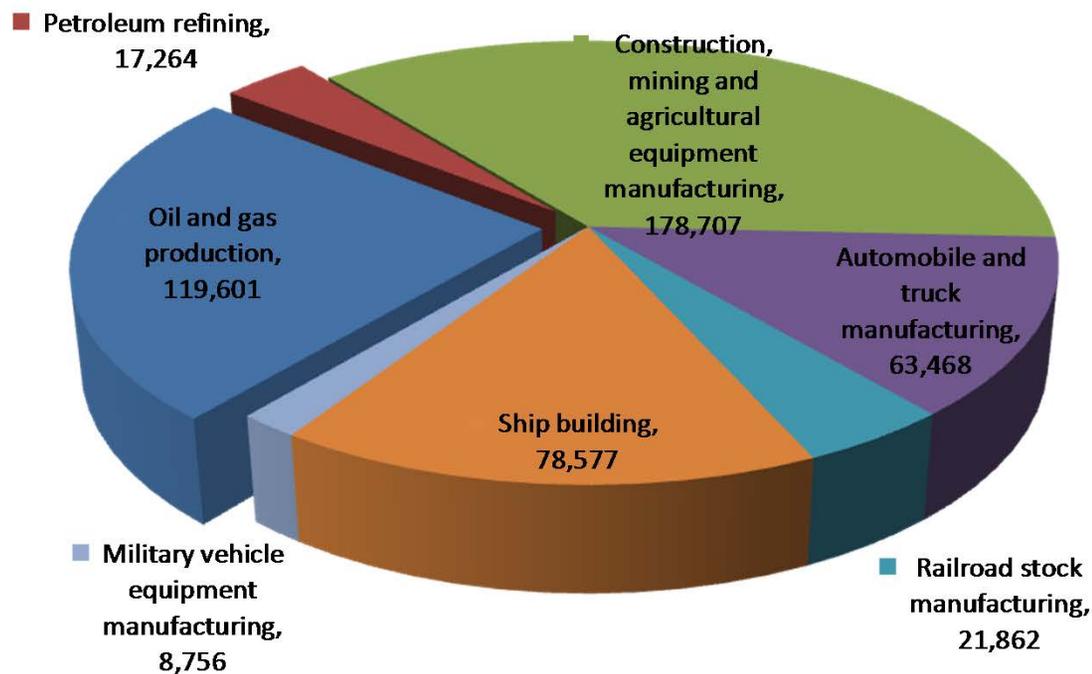
Value Added by Diesel Technology Industries
(2009) Billions \$



DIESEL TECHNOLOGY AND FUELS INDUSTRY EMPLOYS HALF-MILLION

Employment by Diesel Technology and Fuels Industries (2009)

Total = 488,235 Jobs



Diesel technology and fuels productivity is high

- ◎ Facilitates \$4.51 of value added to the broader economy for every dollar of added value from diesel technology industries
- ◎ Created \$207,000 per employee directly in GDP—nearly double the national average
- ◎ Average weekly wages in the sector was 60% higher at \$1,398 per week than the national average

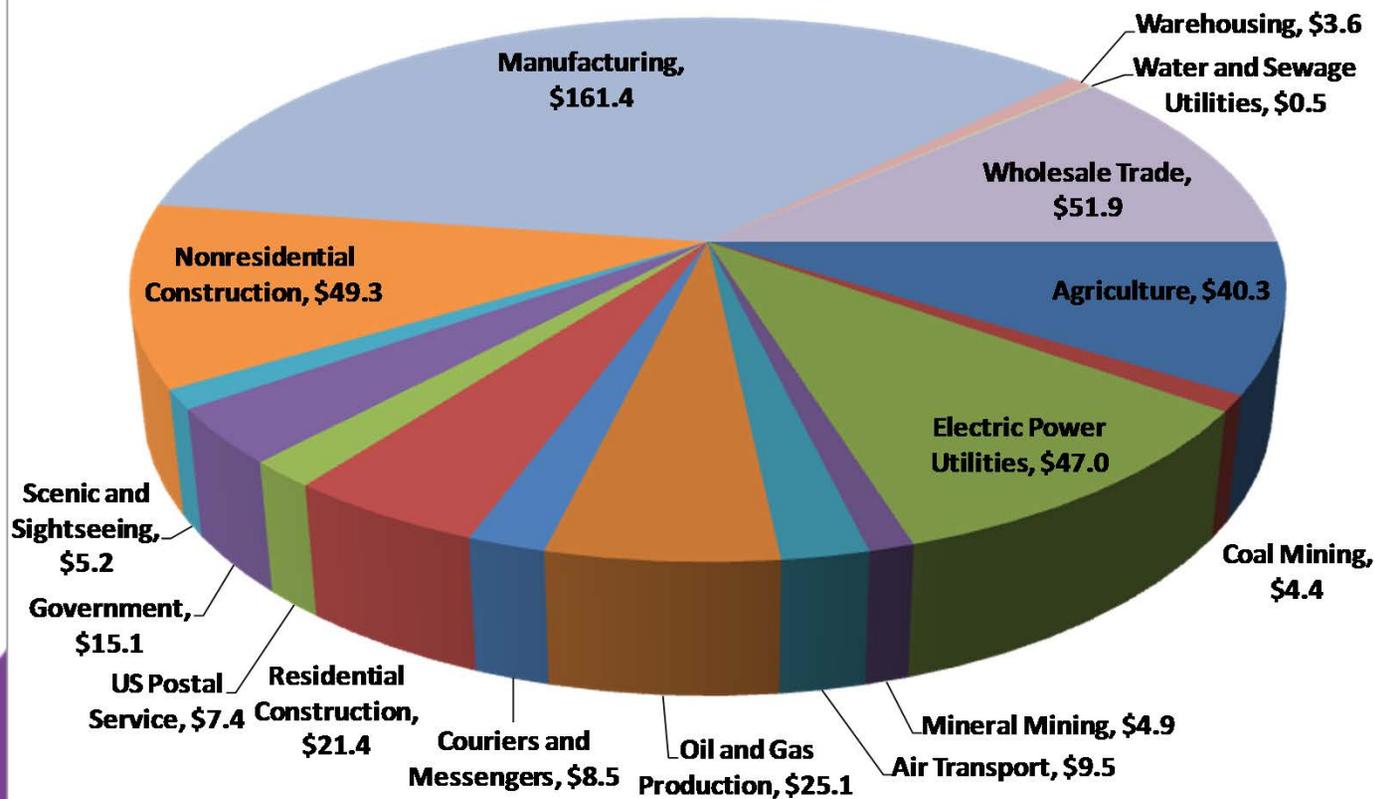
DIESEL SERVICES AND EXPORTS

- **Diesel services** support deployment, operations and maintenance of diesel vehicles and equipment, often embedded in other related industries
 - Added \$82 billion directly and \$207 billion in total to the U.S. economy.
 - Created 764,000 jobs
- ◎ Diesel is a prime high-value export
- ◎ Exports 9% of output, *five times higher than national average for manufacturing industries*
- ◎ 4.4% of all U.S. exports

In key diesel-reliant sectors, creates \$455 billion for GDP

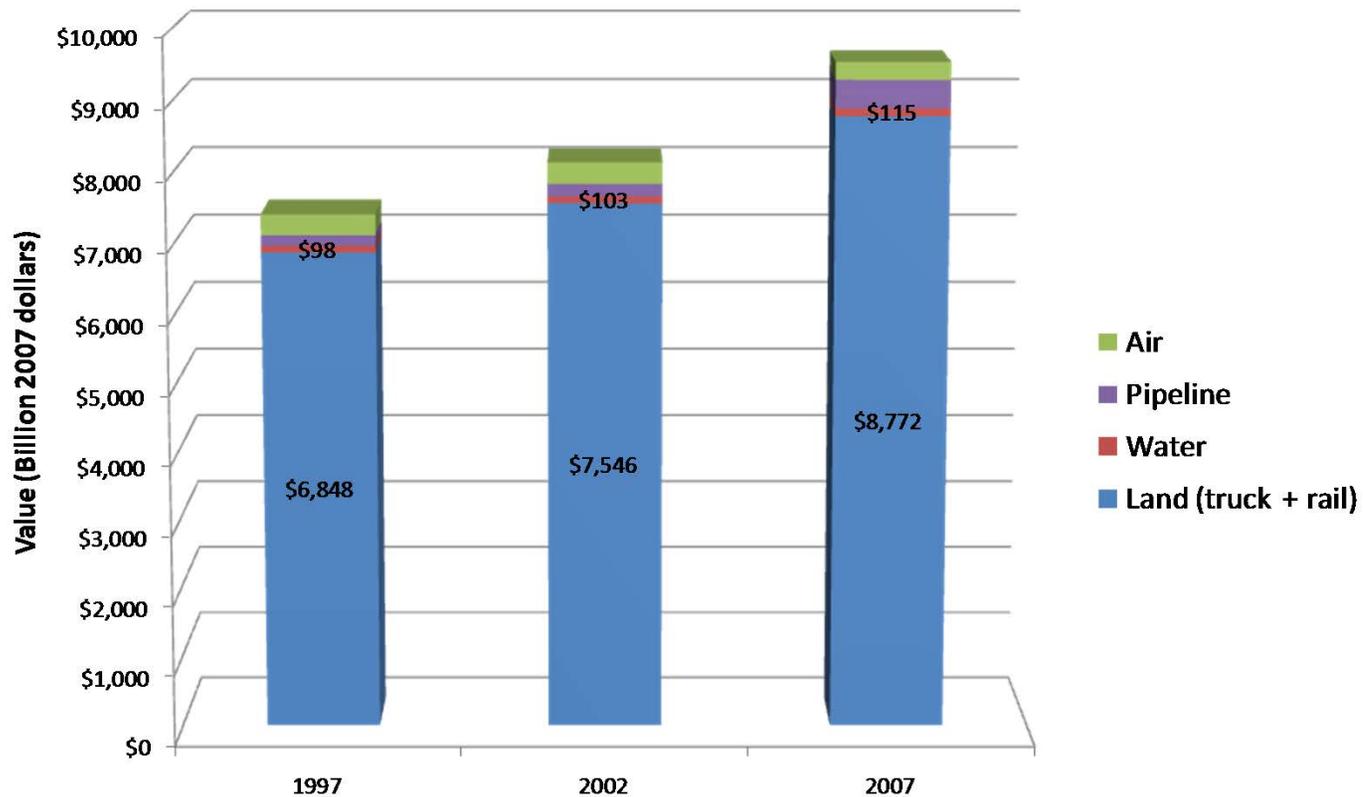
Value Added from Diesel Contribution in Key Sectors
(2009) Billions \$

Total = \$455 Billion



83% of freight value shipped using diesel

**U.S. Freight Shipments: Value by Mode
1997-2007**



Bureau of Transportation Statistics, Commodity Flow Surveys

WHAT'S NEW(S)?

NEWS - World green car of the year... *it's a diesel*

- Meet the 2012 World Green Car of the Year:
Mercedes-Benz S 250 CDI BLUEEFFICIENCY

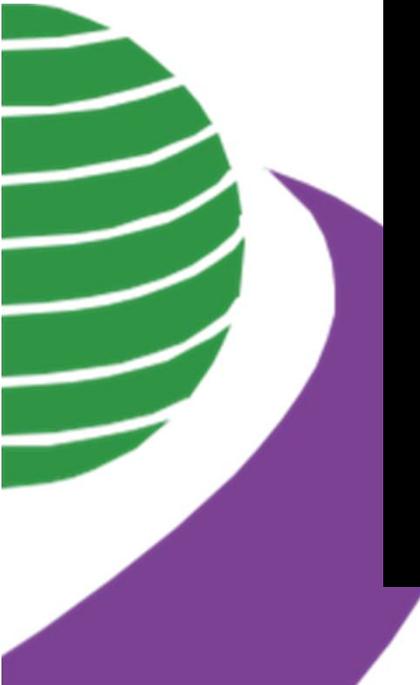


- (41.3 mpg; 149 g/km CO₂)
- *Beat out field of 22 others, electric, hybrids etc.*

CLEAN DIESEL CARS: *MORE BUYING, MORE REPEAT BUYERS,*

- March 2012 Sales compared to February
 - Diesel up 35.1 %
 - Hybrid up 37.2 %
- Repurchase Loyalty (2008-2012)
 - Hybrids 35% (flat)
 - Diesels 28% (*up 9 % in 3 years*)
- *Projected Diesel Share (non-luxury compact cars)*
 - 2007: 2.1%
 - 2011: 23.6%

NEW TECHNOLOGY DIESEL ENGINES



NEWS TODAY: ACES – 2007 HD DIESEL ENGINES

- Advanced Combustion Emissions Research – Most comprehensive study ever undertaken of the health effects of exposure to new technology diesel engines.
- Phase I: Emissions performance
- Phase II: **Health Effects.**
- **NEWS:** First actual health effects results released **today** by HEI (www.healtheffects.org).

The logo for the Health Effects Institute (HEI), consisting of the letters 'HEI' in a stylized, red, serif font.

NEWS-- ACES Phase II

- **Methods:** Exposure of laboratory animals to 2007 diesel engine exhaust emissions for up to 12 months on more rigorous test cycle (*Lovelace Respiratory Research Institute*)
- **Findings:** (*Peer Review Panel Commentary*)
“Overall, these results indicate that rats exposed to one of three levels of diesel exhaust from a 2007-compliant engine for up to 12 months, for 16 hours per day, 5 days a week, with use of a strenuous operating cycle that was more realistic than cycles used in previous studies, showed few biologic effects related to diesel exhaust exposure.”

ACES: PHASE I findings – EMISSIONS new technology diesel engine emissions

- PM levels in NTDE are more than 100-fold lower than in TDE
- NTDE is chemically very different from TDE
- NTDE emissions are similar to or lower than CNG or gasoline emissions
- Biological effects of TDE in human and animal studies are not observed with NTDE

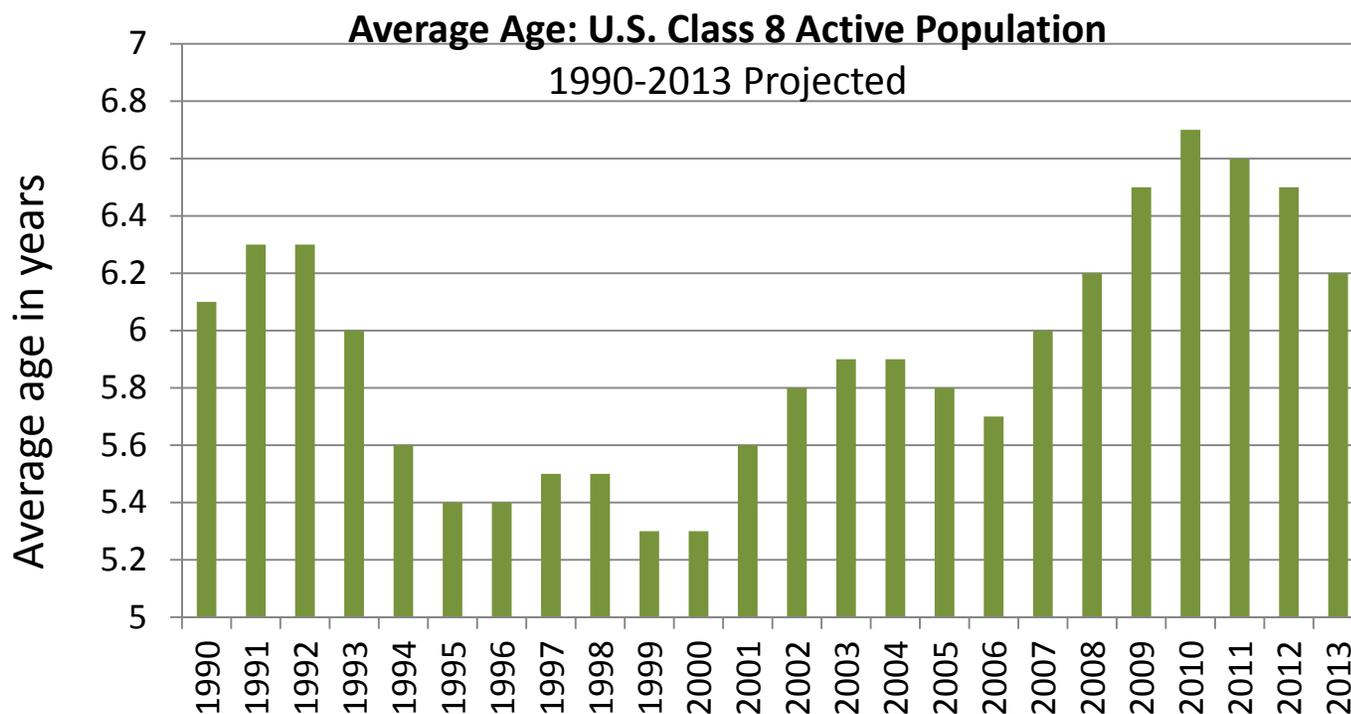
MODERNIZING AND UPGRADING

Factors weighing on investing in new and keeping older diesel engines and equipment

- Economic recovery -- “mixed, spotty, sectorial, sluggish”
 - YTD new Commercial truck sales up 56 % compared to last year
 - *Why? Aging equipment – extended replacement cycles; competitive strategy against fuel price increases*
- Construction Equipment: Higher cost Tier 4 and Tier 4i technology now on the street; used equipment prices are up, Slower economic recovery means slower investments in new; aging fleets.
- Equipment rental world is booming.



Increasing Age of U.S. Truck Fleet



Source: ACT Research Co., LLC

Older trucks = Lower Mileage & Higher Emissions

FUNDING FOR CLEAN DIESEL RETROFIT

- Fewer federal dollars, new approaches
 - FY 2013 DERA funding \$15 Million
 - New approach to allocation – need based, location/risk based/ Rebate program; revised matchings
- Green Construction Act – fate tied to Infrastructure legislation S972/HR3122
 - PM2.5 NA Areas
 - Up to 1 % funding for equipment upgrades and retrofits

GETTING THE WORD OUT TOGETHER 2011 MEDIA CAMPAIGN FOR DERA FUNDING

San Jose Mercury News

“Federal Support for Clean Diesel Critical for State”

The San Jose Mercury News - July 6, 2011 (577,655 circulation - 5th largest in U.S.)

Pittsburgh Post-Gazette®

“Clean up diesel engines: Congress must keep a federal program that's clearing our air”

The Pittsburgh Post-Gazette - July 28, 2011 (187,283 circulation)

THE TAMPA TRIBUNE
and The Tampa Times

“A National Cleanup Program Worth Saving”

The Tampa Tribune - June 21, 2011 (164,568 circulation)

The Oregonian

“The Diesel Emissions Reduction Act: A Program Worth Saving”

The Oregonian - June 9, 2011 (260,248 circulation)

THE BALTIMORE SUN
LIGHT FOR ALL

“Now’s Not The Time To Stop Cleaning Up Diesel Engines”

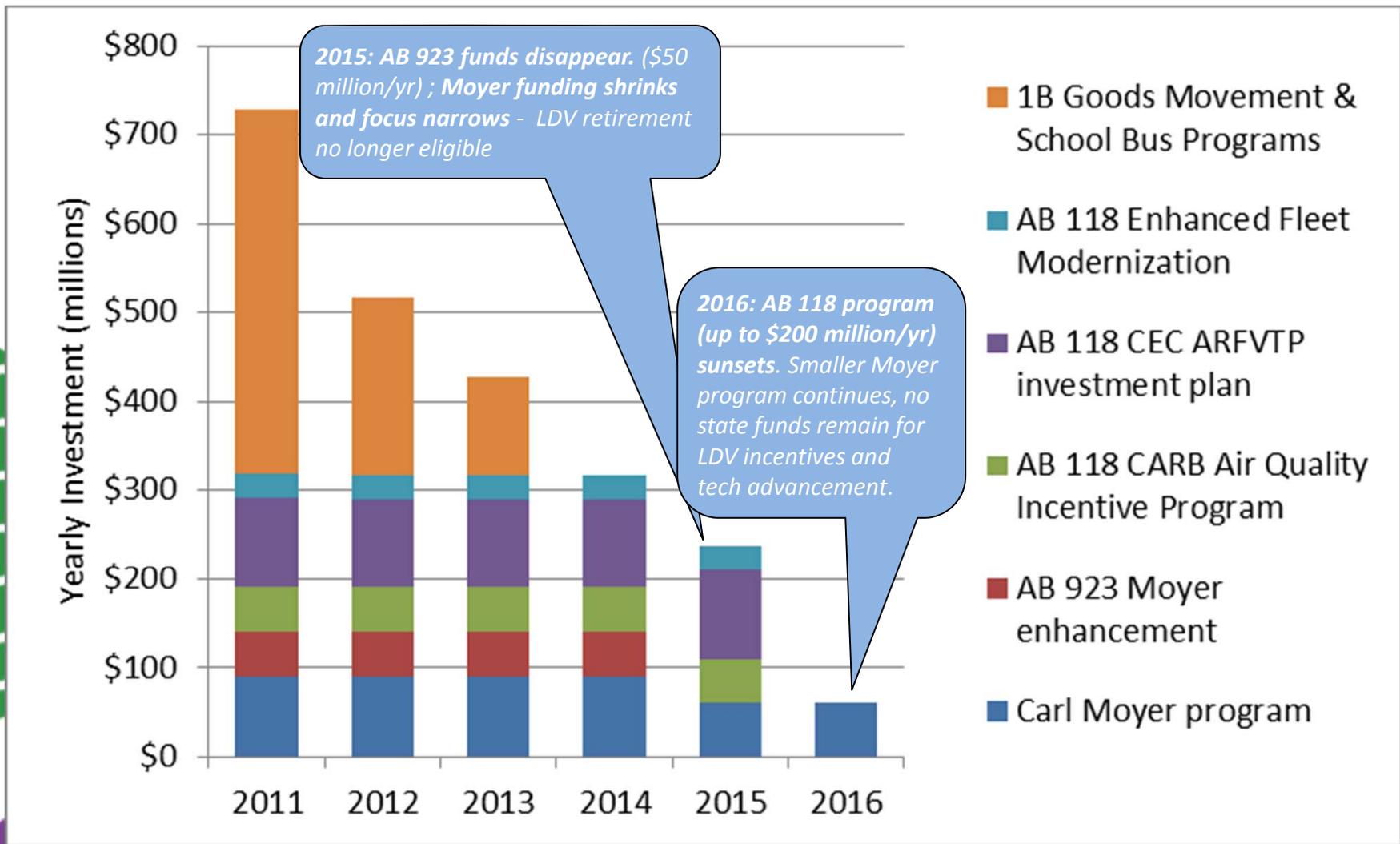
The Baltimore Sun - June 7, 2011 (178,692 circulation)

THE HILL

“A Program Worth Saving”

The Hill Newspaper - April 6, 2011 (24,000+ circulation – largest of all Capitol Hill daily newspapers)

CALIFORNIA'S FUTURE FUNDING FOR DIESEL UPGRADES IS AT RISK



BLACK CARBON: NEW EPA REPORT TO CONGRESS APRIL 20120

- U.S. ~ 8 % of the global black carbon emissions,
 - 52 % of that coming from mobile sources,
 - ~ 93 % of the mobile sources attributed to diesel engines.
- 1990-2005: 32% reduction in black carbon
- EPA projects this percentage will decline by 86 percent by 2030 'largely due to controls on new mobile diesel engines'.
As clean diesel technology continues to advance, these improvements may be even more significant.

NEW GENERATION OF DIESEL TECHNOLOGY AND BLACK CARBON EMISSIONS

- “The United States will achieve substantial BC emissions reductions by 2030, largely due to controls on new mobile diesel engines.

Diesel retrofit programs for in-use mobile sources are a valuable complement to new engine standards for reducing emissions.” - *EPA “Report to Congress on Black Carbon”*

SUMMARY

- New information about new technology diesel engines reaffirms performance and environmental and health benefits
- Careful consideration to the economic condition of the target audience – users. Economic climate is the main driver -- investing in new and hanging on to the old.
- Retrofit, repowers and upgrading still viable, still funded, still important!

THANK YOU

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